



Arizona has a sizable and rapidly growing bioscience industry. State bioscience firms employed 25,686 in 2016 in 1,310 individual business establishments. Industry employment has grown by 9 percent since 2014, twice the growth rate of the nation, with four of the five major subsectors adding jobs during the period. Both drugs and pharmaceuticals and research, testing and medical labs have experienced double-digit job growth since 2014. Arizona inventors have been awarded nearly 2,000 bioscience-related patents since 2014, among the second quintile of states in patent activity. Since 2015, NIH awards to Arizona institutions have increased, reaching \$189 million in FY 2017.

## Bioscience Performance Metrics

### Summary of State Performance in Selected Bioscience-related Metrics

Metric	Arizona	United States	Quintile
<b>Bioscience Industry, 2016</b>			
Bioscience Industry Employment	25,686	1,743,639	III
Bioscience Industry Location Quotient	0.78	n/a	III
Bioscience Industry Establishments	1,310	85,702	III
<b>Academic Bioscience R&amp;D Expenditures, FY 2016</b>			
Bioscience R&D (\$ thousands)	\$459,706	\$41,972,205	III
Bioscience Share of Total R&D	43%	62%	V
Bioscience R&D Per Capita	\$67	\$130	V
<b>NIH Funding, FY 2017</b>			
Funding (\$ thousands)	\$189,017	\$26,150,485	III
Funding Per Capita	\$27	\$80	IV
<b>Bioscience Venture Capital Investments, 2014-17 (\$ millions)</b>	\$296.42	\$66,168.62	III
<b>Bioscience and Related Patents, 2014-17</b>	1,967	102,862	II

State ranking figures for bioscience performance metrics are calculated as quintiles, where I = top quintile, III = middle quintile, and V = bottom quintile. For source notes, see end of State Profile.

Industry Subsector	Arizona		United States	
	2016	2014-2016 Change	2016	2014-2016 Change
<b>Agricultural Feedstock and Industrial Biosciences</b>				
Establishments	11	-21.4%	1,709	-3.2%
Employment	594	-0.2%	68,027	-1.2%
Location Quotient	0.46		n/a	
Direct-Effect Employment Multiplier	4.93			
Total Employment Impact	2,926			
Average Annual Wage	\$51,515	-3.4%	\$80,961	2.7%
<b>Bioscience-Related Distribution</b>				
Establishments	715	-3.4%	39,149	3.8%
Employment	8,147	4.0%	469,640	3.7%
Location Quotient	0.92		n/a	
Direct-Effect Employment Multiplier	2.43			
Total Employment Impact	19,830			
Average Annual Wage	\$96,295	1.1%	\$93,677	2.7%
<b>Drugs and Pharmaceuticals</b>				
Establishments	58	23.4%	3,754	13.7%
Employment	2,277	22.0%	299,113	2.0%
Location Quotient	0.40		n/a	
Direct-Effect Employment Multiplier	6.18			
Total Employment Impact	14,070			
Average Annual Wage	\$55,766	2.7%	\$113,815	-3.2%
<b>Medical Devices and Equipment</b>				
Establishments	109	1.9%	8,083	5.9%
Employment	6,185	1.7%	359,293	2.9%
Location Quotient	0.91		n/a	
Direct-Effect Employment Multiplier	3.06			
Total Employment Impact	18,912			
Average Annual Wage	\$69,823	3.7%	\$84,746	6.5%
<b>Research, Testing, and Medical Laboratories</b>				
Establishments	417	6.0%	33,007	13.1%
Employment	8,483	18.1%	547,566	8.2%
Location Quotient	0.82		n/a	
Direct-Effect Employment Multiplier	2.21			
Total Employment Impact	18,763			
Average Annual Wage	\$73,630	8.4%	\$106,942	5.5%
<b>Total Bioscience Industry</b>				
Establishments	1,310	0.7%	85,702	7.7%
Employment	25,686	9.0%	1,743,639	4.4%
Location Quotient	0.78		n/a	
Direct-Effect Employment Multiplier	2.90			
Total Employment Impact	74,501			
Average Annual Wage	\$77,807	3.2%	\$98,961	3.1%
<b>Total Private Sector</b>				
Establishments	133,397	-2.7%	9,243,034	3.4%
Employment	2,274,567	5.9%	120,884,570	4.2%
Average Annual Wage	\$48,081	3.4%	\$53,354	4.3%

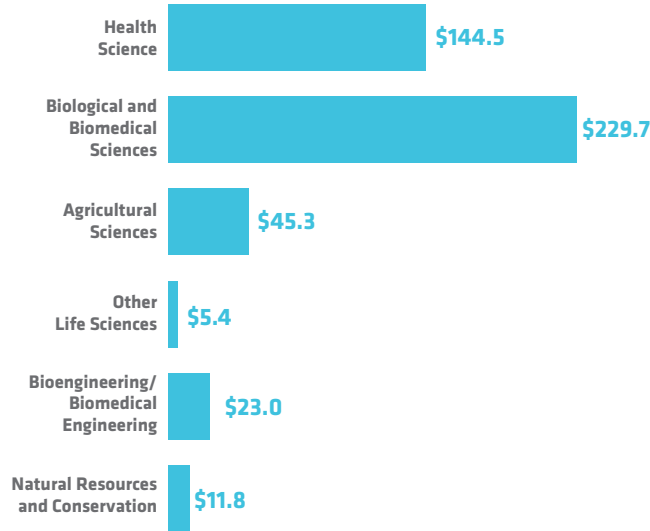
Note: U.S. employment metrics include Puerto Rico.

## Bioscience Research in Arizona

### Bioscience Academic R&D Expenditures

\$ Millions

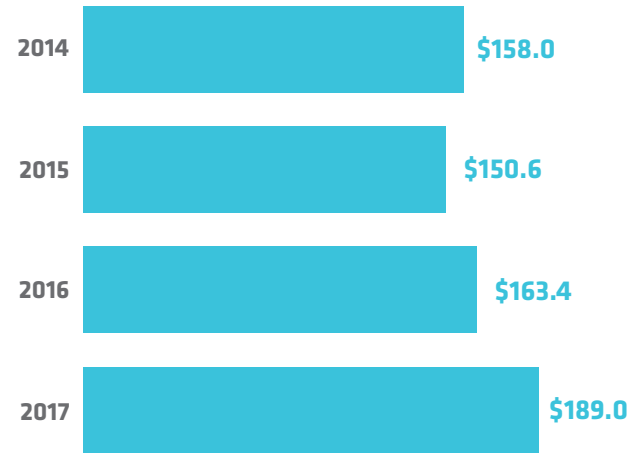
FY 2016



### NIH Awards

\$ Millions

FY 2014-2017

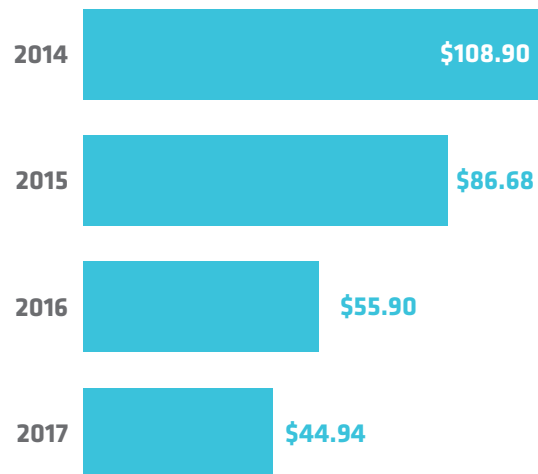


## Bioscience Venture Capital in Arizona

### Bioscience-Related Venture Capital Investments

\$ Millions

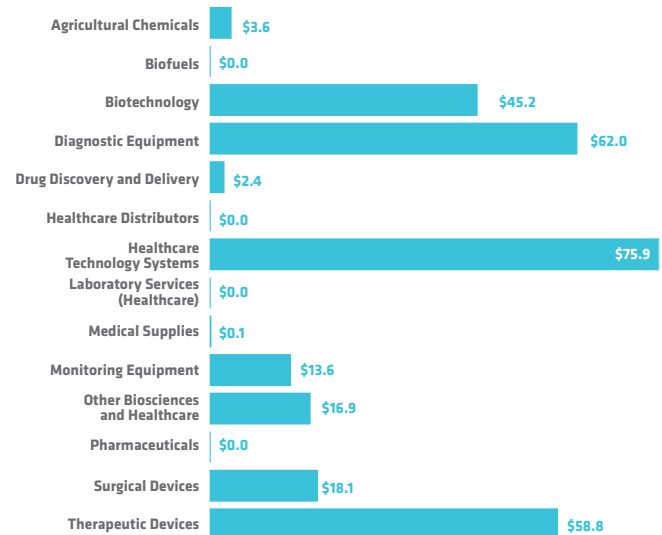
2014-2017



### Bioscience-Related Venture Capital Investments by Segment

\$ Millions

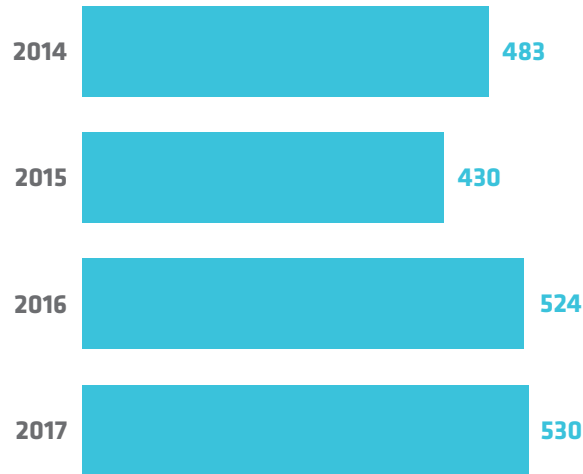
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## Bioscience Patents in Arizona

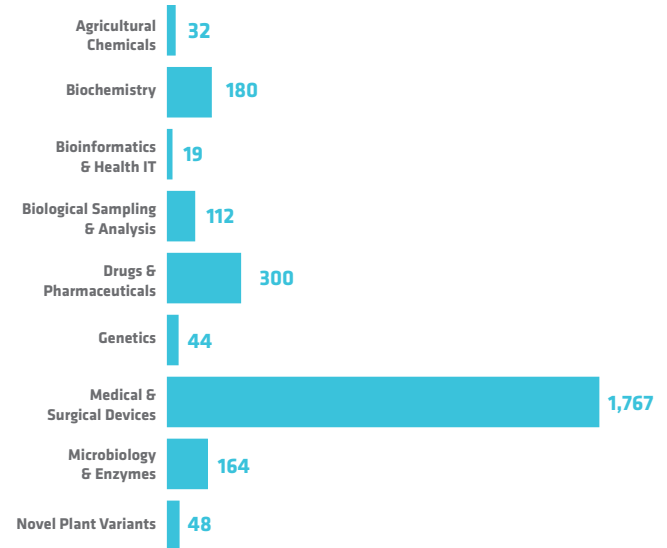
Bioscience-Related U.S. Patents

2014-2017



Bioscience-Related U.S. Patents by Segment

2014-2017



### Source Notes

**Employment, Establishments and Wages:** U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW), enhanced file from IMPLAN.

**Employment Multipliers:** IMPLAN state-level Input/Output models.

**Academic R&D Expenditures:** National Science Foundation (NSF) Higher Education Research and Development (HERD) Survey.

**NIH Funding:** National Institutes of Health, NIH Awards by Location & Organization (summary information within RePORT database).

**Venture Capital:** PitchBook Data, Inc.

**Patents:** U.S. Patent & Trademark Office data from Clarivate Analytics' Derwent Innovation patent analysis database. For a more detailed discussion of the data and methodology used, please see the Appendix to the full national report.

